

## ABSTRACT

The impact of earthquake and tsunami disaster on Nangroe Aceh Daroesallam province (NAD) requires a restructured network must be deployed to fulfill the costumer demand. Therefore, telecommunication operators, in this case PT. TELKOMSEL, must restructure his telecommunication network that had destroyed post earthquake and tsunami disaster.

For this restructure planning, the transmission media that will be used for this link is microwave, and combine it with SDH (Synchronous Digital Hierarchy) technology or we called it Microwave SDH. Microwave SDH, from its economic view; provide the most economic solution for the telecommunication operators, because there will be no need to replace the existing infrastructure. The backbone network itself must be ready to fulfill the network demand for at least three years.

On this backbone planning, link Medan-Banda Aceh will through three main cities, that is Medan, Lhokseumawe, and Banda Aceh. The other sites that are chosen to be a repeater or multiplexer is defined from its geographical structure and climate.

From this planning study, the links that we build must have fulfilled the standard of availability at least 99,999%. This links also generated traffics channel about 155 E1 and will be able to handle the system for three years using 3 STM-1.